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PIAAC : A New Design for a New Era

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Overview

- Brief history of large scale assessments
- What is PIAAC
- Why it is important
- Possibilities for extending the methodology

Brief History of Large Scale Assessments

Pre 1980

Classical test theory

IEA
NAEP

1980 - 2010

Item Response Theory

NAEP
PIRLS
TIMSS
IALS/ALL
PISA

2010 to present

Item response theory
(plus computer based
adaptive testing)

PIAAC
PISA 2015

What is PIAAC?

- which countries participate
- what is assessed
- how is the survey carried out



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Round 1 Participating Countries

Some 166,000 people representing more than 724,000,000 adults in 24 countries/economies ages 16-65 participated in the survey.

2013





Which countries participate?

Round 1 Countries

Round 2 Countries

Australia
Austria
Belgium
Canada
Cyprus
Czech Republic
Denmark
Estonia
Finland
France
Germany
Ireland
Italy
Japan
Korea, Rep of
Netherlands
Norway
Poland
Russian Federation
Slovak Republic
Spain
Sweden
United Kingdom
United States

Chile
Greece
Indonesia
Israel
Lithuania
New Zealand
Singapore
Slovenia
Turkey

Round 3 being planned to include retesting in some Round 1 countries

What Does PIAAC Assess?

The cognitive instruments were offered in 32 languages/versions while the context questionnaire was offered in 36 languages/versions

- Numeracy
- Problem Solving in Technology Rich Environments

Role of the Background Questionnaire

- Report Results to Policy Makers and Others
- Contribute to the Understanding of Observed Distributions
- Psychometric Modeling of the Data

PIAAC Back Questionnaire Sections

A: General Info

B: Past Education and current Ed. & Training

C: Current Status and Work History

D: Current work (if applicable)

E: Last Job (past 12 mo. if no current job)

F: Skills used at work (JRA)

G: Literacy, Numeracy, ICT at work

H: Literacy, Numeracy, ICT at home

I: About yourself

J: Background

PIAAC vs IALS and ALL in the US

IALS	ALL	PIAAC
		Reading Components
Reading Literacy		Reading Literacy
Quantitative		
	Numeracy	Numeracy
		PS in TRE



Why reading components?

- There are varying percentages of adults in each country who demonstrate little if any literacy skills.
- Studies done in the US and Canada show that many of these adults have weak component skills, which are essential in the development of literacy and numeracy skills.
- Moreover, low literate adults have a differential mix of skills.

Why literacy and numeracy?

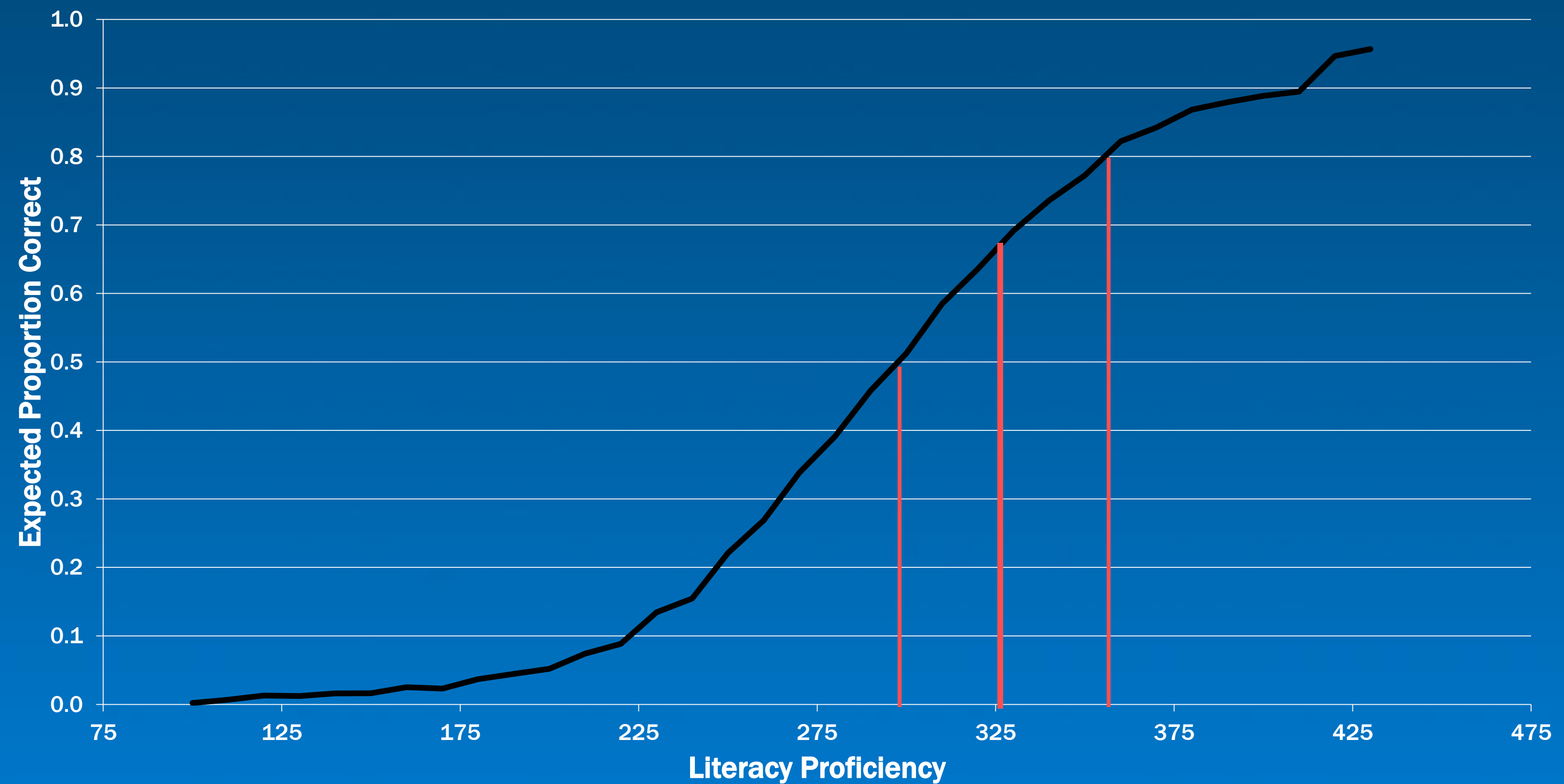
- Literacy and numeracy are foundational skills; the skills on which others are built, allowing individuals to develop the human capital they will need to meet changing workforce and societal demands.
- Data show that these skills are important to workforce participation, participation in lifelong learning, keeping abreast of social and political events and, more recently, to health outcomes.
- Literacy and numeracy are not interchangeable. They measure different skills and they correlate with outcomes differently.



Why computer-based measures?

- As we move into the 21st century, a broadened view of literacy that includes skills and knowledge related to ICT is increasingly seen as an essential component of human capital.
- Cisco Systems estimates there are now 10 billion Internet-connected devices in the world, meaning Internet devices now outnumber human beings.
- Being able to solve problems in technology rich environments will be required of almost everyone wishing to participate fully in modern societies

Association of Literacy Proficiency with Expected Scores in PSTRE



How is PIAAC carried out?

- PIAAC is administered in face-to-face interviews in the homes of nationally representative samples of adults
- The primary mode of delivery is laptop computers
- Adults who are unable to use a computer are provided with a paper and pencil assessment booklet

Why is this survey important?

- it is the largest and most innovative survey of adults skills ever conducted
- it broadens and complements the type of information that is collected in school based surveys

Innovation improved relevance, quality & validity

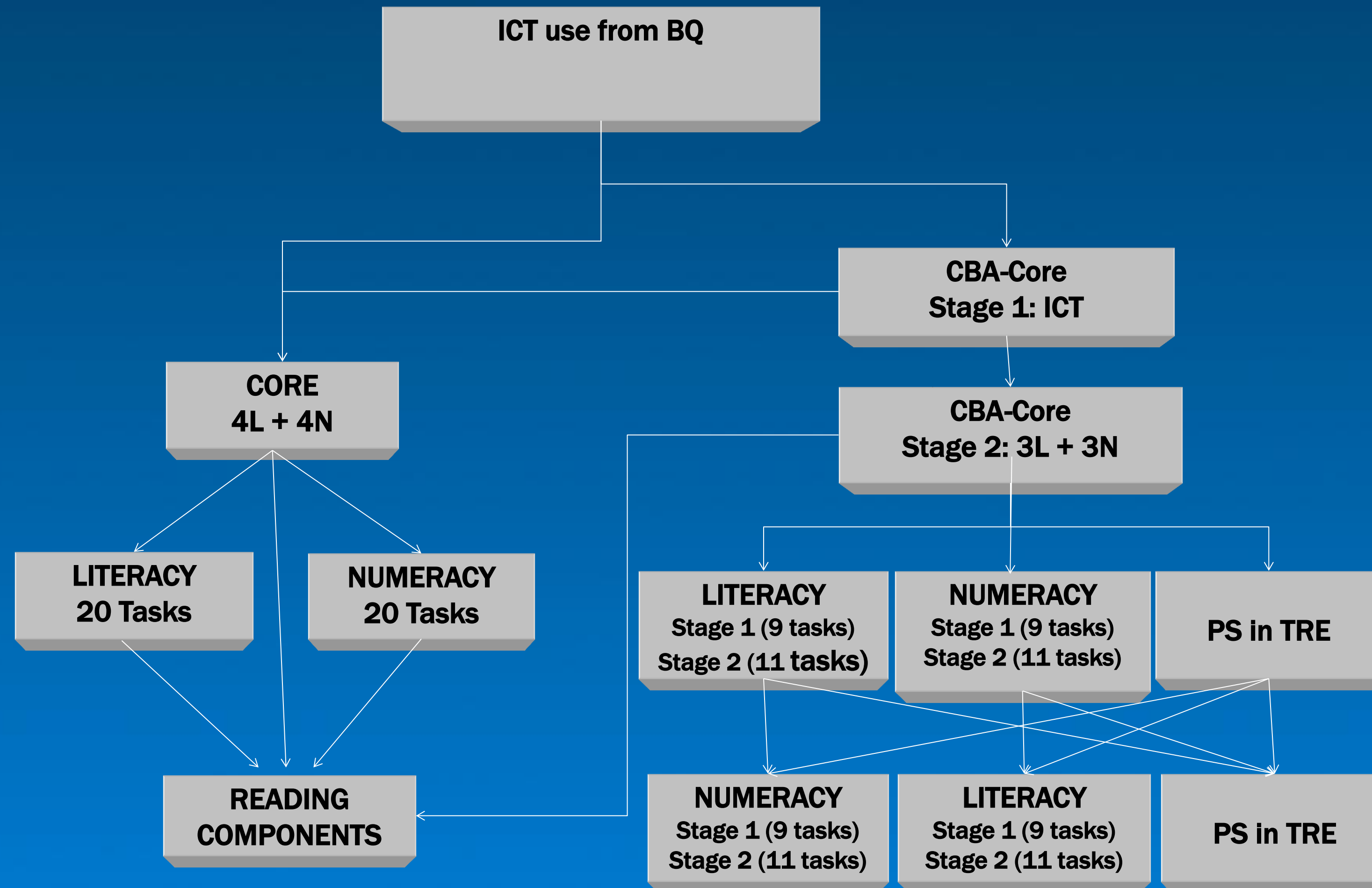
PIAAC is the first survey of adult skills to ...

- be fully designed as a computer-based assessment
- include a complex design that provides a statistical link over time and across modes
- utilize multi-stage adaptive testing
- include fully automated scoring of open-ended items
- incorporate a broader range of information available in the log files to refine scoring and model proficiency information

PIAAC Main Survey Design

Paper Branch

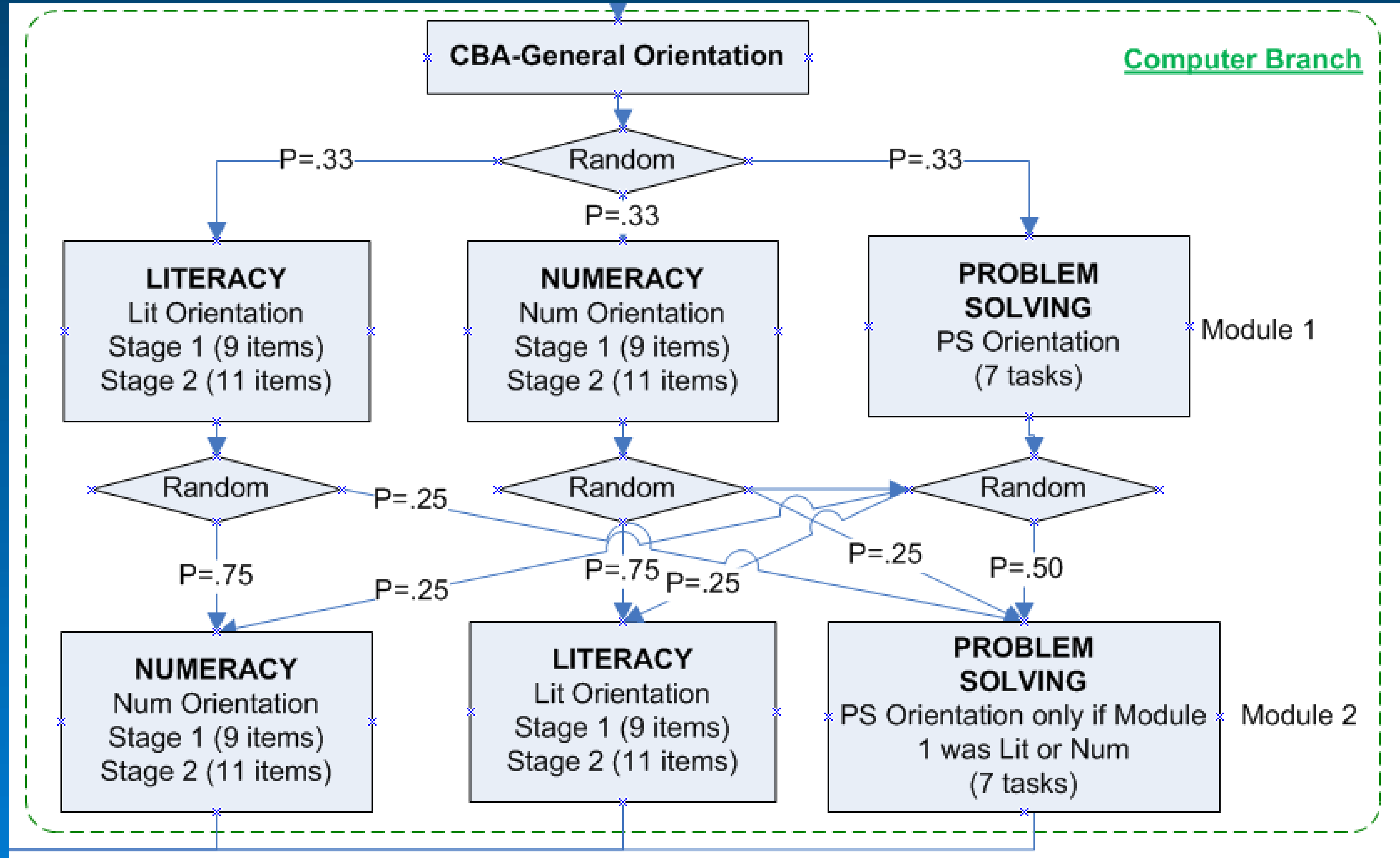
Computer Branch



Average Proficiency Scores By Domain and Workflow

	Literacy	Numeracy	PSTRE
No ICT	226	214	
Failed CBA Core	244	229	
Refused CBA	263	249	
CBA	281	279	283

PIAAC Multi-domain Adaptive Testing Design



PIAAC Multi-stage Adaptive Design

	(0-230)	(230-265)	(266-300)	(300+)			
CBA-Core –Stage2							
Core	3 items						
Stage 1							
	Block A1 (0-230)	Block B1 (230-265)	Block C1 (266-300)	Block D1 (300+)			
Stage 1, Testlet 1-1	4 items	5 items					
Stage 1, Testlet 1-2		“	4 items				
Stage 1, Testlet 1-3			“	5 items			
Stage 2							
	Block A2 (0-229)	Block B2 (230)	Block C2 (231-250)	Block D2 (251-280)	Block E2 (281-300)	Block F2 (300+)	Block G2 (300+)
Stage 2, Testlet 2-1	6 items	5 items					
Stage 2, Testlet 2-2		“	3 items	3 items			
Stage 2, Testlet 2-3				“	3 items	5 items	
Stage 2, Testlet 2-4						“	6 items

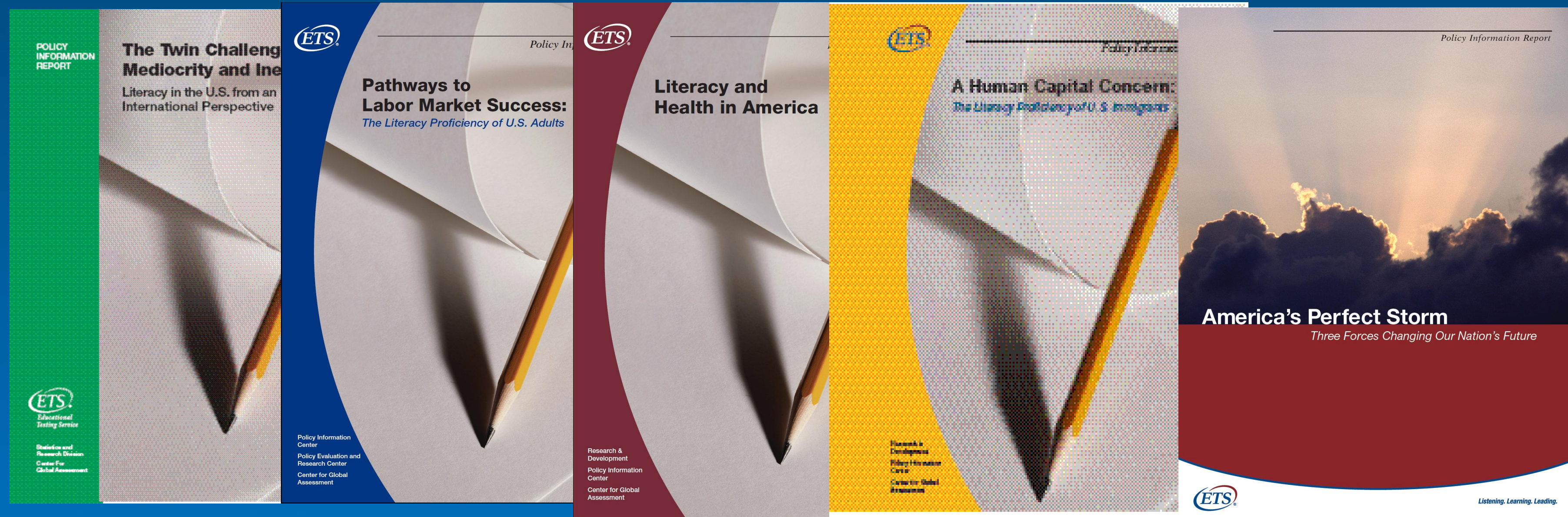
What PIAAC data can tell us

- provide a better understanding of the distributions of key skills and proficiencies both at the national and international levels
- shed light on the extent skills translate into better opportunities for individuals & economies
- help evaluate how effective our education and training systems, and our social and workplace practices are in developing the required skills and proficiencies

Data products

- Data Explorer
- Public Use File (some countries have suppressed or coarsened data)
- Background Questionnaire
- Codebook
- SAS and STATA tools
- IEA Data Analyser
- Technical Report
- Sample items (forthcoming)

Sample Policy Reports Using Large Scale Assessment Data



Questions?



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Thank you